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OVERVIEW

Ventilative Cooling Lowers Energy Consumption

HTTP://WWW.BUILDUP.EU/NEWS/35658

Ventilative cooling refers to the use of natural or mechanical ventilation strategies to cool indoor spaces. The use of outside air reduces the energy consumption of cooling systems while maintaining thermal comfort. The most common technique is the use of increased ventilation airflow rates and night ventilation, but other technologies may be considered as well. Ventilative cooling is applicable in a wide range of buildings and may be critical to realise low energy targets for renovated or new Nearly Zero-Energy Buildings (NZEBs).

Recent developments for ventilative cooling in standards and regulations – Perspectives with the EPBD recast

Several studies have demonstrated the energy saving potential of ventilative cooling. If well designed and executed, ventilative cooling can play a major role in reducing energy use in buildings as required by the recast of the Energy Performance of Buildings Directive.

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To realise this potential and facilitate the use of ventilative cooling, it is important that this technology is correctly covered in future NZEB regulations. It must be supported by appropriate technical solutions which are compatible and accounted for in standards and regulations.

Several countries - e.g. Austria, Denmark and France - have taken steps to integrate ventilative cooling into their building regulations, which is a positive development.

Within existing CEN standards, relevant to ventilative cooling and used in energy performance regulations (EN 15242, EN 15241, EN 15251 and EN 13779), there remain some critical limitations for these technologies. For example, how to properly reflect the effective cooling potential of outdoor air which varies within a single day, in seasonal or monthly methods. These limitations should be discussed within the context of implementing the recast of the Energy Performance of Buildings Directive (EPBD recast) for which the European Commission has issued Mandate M/480.

Case studies and demonstrated energy savings

There is a wide range of real world applications of ventilative cooling. Speakers at the International workshop on ventilative cooling, held in Brussels, March 2013, outlined solutions that have been implemented in schools, sport halls, offices etc. which have achieved considerable energy savings, particularly when ventilative cooling is operated overnight.

The examples of a dual sports hall and a medical centre in Switzerland show that with proper solar protection, thermal mass and reduction of internal loads, night ventilative cooling can completely eliminate the need for active cooling. Meanwhile, in Belgium, office buildings have been designed with night ventilative cooling. The new Nicosia Town-hall located in the hot Mediterranean climate of Cyprus, implemented a night cooling strategy that has recorded a 56 % reduction in the cooling demand.

International initiatives to promote ventilative cooling

IEA-EBC Annex 62

In light of the potential energy benefits this technology, the Executive Committee of the IEA Energy in Buildings and Communities Programme (IEA-EBC) has formed a new project on ventilative cooling, named IEA-EBC Annex 62. The focus of the new annex is the development of design methods and compliance tools for predicting, evaluating and eliminating the need for cooling and the risk of overheating in buildings. The project aims to develop new energy efficient ventilative cooling solutions.

IEA-EBC Annex 62 participants include representatives from approximately 15 European countries, Japan, the USA, as well as representatives from universities, research centres, and manufacturers and suppliers of ventilation equipment.

venticool - The international Ventilative Cooling Platform

venticool is the international ventilative cooling platform, that was launched in October 2012, to accelerate the uptake of ventilative cooling by raising awareness, sharing experiences and steering research and development efforts in the field of ventilative cooling. The platform was officially launched during the 33rd AIVC - 2nd TightVent conference in Copenhagen, 10-11 October 2012. It was initiated by INIVE eeig (International Network for Information on Ventilation and Energy Performance) with the financial and/or technical support of several partners. venticool will assist the IEA-EBC Annex 62 with dissemination activities.

Meeting places

Many events are taking place around the world – check out the BUILD UP events listing for the latest meetings, conferences and seminars on ventilative cooling.

A taste of what's coming up: The 34th AIVC - 3rd TightVent - 2nd Cool Roofs conference - 1st venticool conference in Athens, 25-26 September 2013, including several presentations related to ventilative cooling.

More information on websites: AIVC and venticool.

BUILD UP Community

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Further information on ventilative cooling can be found on the **BUILD UP Community 'Ventilative cooling'**.

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